



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,982	06/03/2005	Hiroya Nakamura	2005-0636A	3030
513 7590 08/29/2008 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021				
EXAMINER				
ZIMMER, ANTHONY J				
ART UNIT		PAPER NUMBER		
1793				
MAIL DATE		DELIVERY MODE		
08/29/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/532,982

Applicant(s)

NAKAMURA ET AL.

Examiner

ANTHONY J. ZIMMER

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date 6/2/2008
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welch '473 in view of Nagai '080.

Welch teaches a process of separation and isolation of shaped catalyst particles. See column 1, lines 10-12. Welch teaches removing spent catalysts (solid catalyst components deteriorated in a reaction) from a fixed bed reactor and regenerating the spent catalyst. See column 1, lines 34-38, 42-43; Figure 3, Elements 14, 30, and 36; column 5, lines 39-43 and column 7, lines 33-45. Welch teaches separating out smaller particles from larger particles (in other words separating catalyst components that have a plurality of different shapes) before regeneration. See Figure 3, Elements 14, 30, and 36; column 5, lines 39-43; and column 7 lines 1-5 and 33-37; and Figure 1.

Welch does not teach separating out a catalyst component substantially inert to the reaction. However, it would have been obvious to one of ordinary skill in the art to modify Welch with Nagai. Nagai teaches a process of subjecting propylene, isobutylene, or tertiary butanol to vapor phase catalytic oxidation to produce an unsaturated aldehyde with a catalyst comprising molybdenum, bismuth, and iron. See abstract of Nagai. In particular Nagai teaches adding an inert component to said catalyst (having different shapes. See Nagai Example 1; column 6, lines 20-27; and claim 1.

Regeneration processes performed outside of the reactor are well known in the art, as Nagai discloses as prior art a process of regenerating such a catalyst by saturating a deteriorated catalyst with a solution containing molybdenum and bismuth and then calcining. See column 2, lines 46-56 of Nagai. In utilizing such a regeneration process, one of ordinary skill in the art would have recognized that removing the inert particles before regeneration would be beneficial in order to decrease the cost of regeneration by creating a smaller volume of the catalyst to regenerate (Welch teaches removing catalyst particles for this reason, see Welch, column 7, lines 62-63). Thus, since Welch is a method known in the art to separate catalyst components one of ordinary skill would have found it obvious to combine the two references by substituting the inert particles of Nagai for the smaller particles in Welch and also substituting the Mo, Bi, Fe catalyst particles of Nagai for the larger particles in Welch in order to affect the predictable result of separating the catalyst components before regeneration.

As noted above, Welch teaches separating out smaller particles. Welch discloses (as prior art) separating out the smaller particles (which are described as light

Art Unit: 1793

pellets) that have a (minor) diameter less than the narrow opening (the smaller "a" dimension) of the rectangular screen from the larger catalyst components which have a (minor) diameter greater than the narrow opening of the rectangular screen (and thus a minor axis diameter different than the inert particles). See Figure 1 and column 4, lines 13-26.

Welch does not teach that the longer dimension of the rectangular holes in the sieve are larger than the major axis of the smaller particles, however it would have been obvious to one of ordinary skill in the art to size the holes of the screen in Welch so that the larger dimension of the rectangular screen is larger than the major axis diameter of the inert particles as the principle of separation based on size exclusion is well known and since purpose of the screen in Welch is to let the smaller particles pass through, one of ordinary skill in the art would have found it obvious to size the rectangular screen to allow the small particles to fit by selecting a rectangular screen wherein the rectangular holes in the screen have a larger dimension (the "b" dimension) that is larger than the major axis of the smaller cylindrical particle. Also, it appears in Figure 1 that the smaller particles (A) are shorter in length than the larger dimension of the rectangular screen. See Figure 1. Furthermore, it would have been obvious to one of ordinary skill in the art to resize the holes in a screen in order to affect an effective separation of two differently sized/shaped particles, as separation based on size exclusion is a well known scientific concept in the art.

Though it is only conditionally required by the claim, the repetition of separation steps in order to improve the quality of the separation is routine practice in the art and

Art Unit: 1793

would have been obvious to one of ordinary skill in the art in order to improve the purity of the product.

Response to Arguments

Applicant's arguments filed 6/2/2008 have been fully considered but they are not persuasive.

Applicant argues that the patentability of claim 29 resides in the fact that the three methods are selected from among numerous separation methods based on the fact that the methods are advantageous and thus precluding other separation methods.

However, the limitations of the claim are rendered obvious by the prior art as applied above. The claim only requires that one method be selected and utilized, and Welch discloses method 1. Furthermore, selection of an appropriate separation method among known methods is a matter of design choice and routine optimization.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

Art Unit: 1793

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. ZIMMER whose telephone number is (571)270-3591. The examiner can normally be reached on Monday - Friday 7:30 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ajz

/Steven Bos/

Primary Examiner, Art Unit 1793